

CLAIMS

1. An illumination system consisting of phosphore  
5 particles dispersed in a solid, durable matrix while  
enabling it to be handled by a user.
2. The illumination system as claimed in claim 1,  
characterized in that the particles are phosphores  
10 within the visible region.
3. The illumination system as claimed in claim 1 or  
2, characterized in that the particles can be excited  
by electromagnetic radiation in the UV, visible, IR  
15 region or by X-rays or by gamma rays, or by a beam of  
particles (electrons, ions) or by an electric field.
4. The illumination system as claimed in one of the  
preceding claims, characterized in that the matrix is  
20 inorganic.
5. The illumination system as claimed in claim 4,  
characterized in that the matrix comprises lithium  
silicate.  
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6. The illumination system as claimed in claim 4,  
characterized in that the matrix comprises a product of  
the polymerization/polycondensation of a silicon  
alkoxide.  
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7. The illumination system as claimed in one of the  
preceding claims, characterized in that the matrix is  
in the form of a thin layer adhering to a substrate.
- 35 8. The illumination system as claimed in one of the  
preceding claims, characterized in that the phosphore  
particles are in aqueous suspensions and characterized  
in that their size is at most equal to 100 nm,

preferably 30 nm, preferably 10 nm, and in that the assembly that they form with the matrix is transparent.

9. The illumination system as claimed in one of  
5 claims 1 to 7, characterized in that the size of the phosphore particles lies between 0.5 and 10  $\mu\text{m}$ .

10. The illumination system as claimed in claim 9,  
10 characterized in that the matrix comprises particles scattering visible light.

11. The illumination system as claimed in one of  
claims 7 to 10, characterized in that the substrate is  
capable of exciting phosphore particles, in particular  
15 an electroconductor, in particular of the UV  
electroluminescent type.

12. The illumination system as claimed in one of  
claims 7 to 10, characterized in that the substrate is  
20 capable of emitting radiation with a wavelength in the  
visible region under suitable excitation.

13. The illumination system as claimed in claim 12,  
characterized in that the substrate is made of glass  
25 with a cerium content capable of emitting blue light  
under ultraviolet radiation.

14. The illumination system as claimed in claim 7,  
characterized in that the substrate is made of glass,  
30 in particular in the form of a sheet, slab, tube, fiber  
or fabric.

15. The illumination system as claimed in claim 7,  
characterized in that the substrate is made of plastic.

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16. The illumination system as claimed in one of the  
preceding claims, characterized in that the phosphore  
particles emitting different wavelengths are associated

there with, separated from each other and homogenized, so as to produce light, especially white light.

17. The illumination system as claimed in one of  
5 claims 1 to 15, characterized in that the phosphore  
particles that are identical or emit different  
wavelengths are associated therewith in variable  
compositions and/or concentrations, so as to form signs  
such as written or similar signs, or for any other,  
10 especially decorative, purpose.

18. The application of an illumination system as  
claimed in one of the preceding claims to a transparent  
device.

15 19. The application of an illumination system as  
claimed in one of claims 1 to 17 to a light-scattering  
device.

20 20 The application as claimed in claim 18 or 19 to a  
lamp, in particular a thin one, or to a device  
illuminating at night, in particular for signs, or for  
decorative purposes, or to a flat lamp.

25 21. The application as claimed in one of claims 18 to  
20, to monolithic, laminated, single glazing or  
multiple glazing designed for buildings, to a transport  
vehicle, such as an automobile rear window, side window  
or roof, to any other terrestrial or aquatic vehicle or  
30 aircraft, to street furniture, such as a bus shelter,  
to a road sign or to an advertisement panel, to an  
aquarium, to a store window, to a glasshouse, to  
interior furniture, to a mirror, to a screen for a  
display system of the computer type, to a television,  
35 to a telephone, to electrically controllable glazing  
such as electrochromic glass, to liquid crystals, to  
electroluminescent material or to photovoltaic glass.